(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 908 414 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
14.04.1999 Bulletin 1999/15

(51) Int. Cl.[6]: **B67D 1/04**, B67D 1/00

(21) Application number: **98203364.9**

(22) Date of filing: **05.10.1998**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **06.10.1997 NL 1007213**

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(54) Device for dispensing a viscous product

(57) A device for dispensing viscous liquids, such as pastry cream, rice pudding and the like, which viscous liquid is filled into a bag (B) provided with a nozzle (N), wherein the device comprises a housing (1) with a chamber (3), a cover (4) intended for closing the chamber, a piston (5) arranged for movement in the chamber, a recess (6) for fittingly receiving the nozzle when the bag is disposed within the chamber, and a hose with a piping nozzle, which hose, in connected condition, is in fluid communication with the interior of the bag via the nozzle.

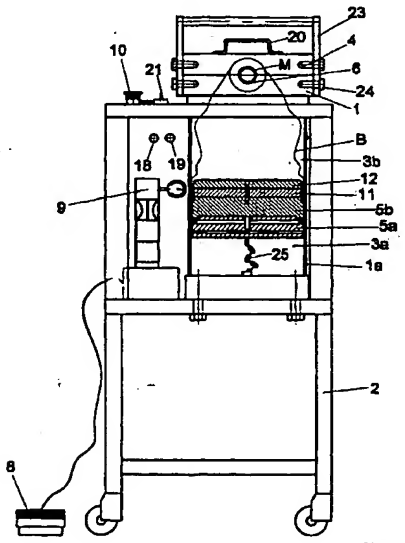

Fig. 3

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Description

[0001] Pastry cream, rice pudding, whipped cream, whipping cream and similar viscous and/or beaten-up liquids are generally bought by bakeries, restaurants and such consumers in bags having a content of 2-20 liters. The liquid to be processed is often aseptically packed in these bags, so that it can be stored for a longer period of time. When the baker or cook wishes to proceed to the processing of the pastry cream, the rice pudding, the ice, the whipping cream or such viscous and/or beaten-up liquid, the bag containing this liquid is generally cut open and at least partly emptied into a so-called piping bag. Such piping bags are often provided with a piping nozzle, by means of which the relevant liquid can be dispensed in an elegantly shaped string.

[0002] This process has the drawback that during the transfer of the liquid from the bag to the piping bag, pollution of the product may readily occur. It is impossible to carry out this transfer under aseptic conditions. Furthermore, the transfer of the liquid from the bag to the piping bag is rather time-consuming and involves the loss of a substantial amount of liquid, because the bag cannot be emptied completely and, moreover, the piping bag cannot be emptied completely either. Furthermore, the transfer of the liquid from the bag to the piping bag is a real job, because the bag generally weighs two to twenty kilos. Once the liquid is in the piping bag, it is measured out by pinching the piping bag. It is therefore not easy to dispense the same amount of product in each case by means of a piping bag. If a change from one liquid to another is needed, the piping bag must first be cleaned completely, which is a very labor-intensive and time-consuming activity.

[0003] It is an object of the invention to provide a device for dispensing liquid, such as pastry cream, rice pudding and the like, which liquid is contained in a bag provided with a nozzle. According to the invention, the device is characterized by a housing comprising a chamber, the device comprising a cover intended for closing the chamber, a piston arranged for movement in the chamber, a recess for fittingly receiving the nozzle when the bag is disposed within the chamber, and a hose with a piping nozzle, which hose, in connected condition, is in fluid communication with the interior of the bag via the nozzle.

[0004] To empty the bag filled with liquid, the bag is disposed within the chamber of the device, with the nozzle of the bag being positioned in the recess. Subsequently, the cover of the device can be closed, and the hose with piping nozzle can be connected. Subsequently, the piston is moved in the direction of the cover, and the bag is gradually emptied under pressure. During this emptying under pressure, the liquid flows out via the hose with piping nozzle. Owing to the fact that the liquid directly finds its way from the bag to the product, the processing is very hygienic, since the product does not come in contact with the ambient air or polluted parts. Moreover, the bag need not be emptied manually, because the liquid is brought directly from the bag to the final destination. The bag can then be emptied almost completely, without a loss of product, and the processing can take place at a high speed.

[0005] According to a further embodiment, it is very favorable if the recess for receiving the nozzle partly extends in the cover and partly in the housing adjacent to an edge defining the access opening of the chamber, so that in closed condition of the cover the nozzle is fixed between the housing and the cover. In a device of such design, it is very easy to place the nozzle in the recess, because the nozzle is first laid in the lower half of the recess in the housing, after which the nozzle is fixed when closing the cover of the device.

[0006] To effect a simple movement of the piston in the chamber, it is very favorable if according to a further elaboration of the invention a pressure line, by means of which a pressure medium can be supplied for moving the piston in the direction of the cover, is connected to the part of the chamber located on the side of the piston facing away from the cover. Such a drive of the piston has the additional advantage that when the piping nozzle is closed, the movement of the piston is automatically interrupted by the counter-pressure occurring in the bag.

[0007] Further elaborations of the invention are described in the subclaims and will be explained in detail by means of an exemplary embodiment, with reference to the accompanying drawings, in which:

Fig. 1 is a side view of the device, the chamber being shown in cross-section;
Fig. 2 is a front view of the device, the chamber being shown in cross-section;
Fig. 3 is a front view of the device as shown in Fig. 2, the chamber being shown in cross-section, and a bag being disposed within the chamber;
Fig. 4 is a top plan view of the device; and
Fig. 5 is a view of the piston and some filling plates arranged thereon.

[0008] The exemplary embodiment shown is intended for dispensing viscous and/or beaten-up liquid, such as pastry cream, rice pudding and the like. This liquid is filled into a bag B provided with a nozzle M. The device comprises a housing 1 arranged in an optionally movable frame 2. The housing 1 comprises a chamber 3. The device further comprises a cover 4 hinged to the housing 1. Provided in the chamber 3 is a piston 5 arranged for movement in the chamber 3. The device further comprises a recess 6 for fittingly receiving the nozzle M when the bag B is disposed within the chamber 3. The device further comprises a hose with a piping nozzle, not shown. In connected condition, this hose is in fluid communication with the interior of the bag B via the nozzle. The recess 6 for receiving the nozzle M extends partly in the cover 4 and partly in the housing 1 adjacent

to the edge 7 defining an access opening of the chamber 3, so that in closed condition of the cover 4 the nozzle M is fixed between the housing 1 and the cover 4.

[0009] A pressure line, by means of which a pressure medium can be supplied for moving the piston 5 in the direction of the cover 4, is connected to the part 3a of the chamber 3 located on the side of the piston 5 facing away from the cover 4. In general; compressed air will be used for the pressure medium. The supply of the pressure medium can be controlled, e.g., by means of a foot pedal 8. By means of a compressed air control 9, depending on the position of the foot pedal 8, compressed air is supplied to the chamber part 3a below the piston 5. When compressed air is supplied, the piston will move up, at least if the counterpressure in the bag B is not too high. During this upward movement a bag with viscous liquid positioned in the chamber part 3b of the chamber 3 is slowly emptied under pressure between the piston 5 and the cover 4, while the liquid flows away via the nozzle M and the hose mentioned before, but not shown. The supply of pressure medium can be stopped by releasing the foot pedal 8 or, in emergency conditions, by pressing the emergency button 10. To prevent the piston 5 from being pressed up too far, the device is provided with a chain 25 attached to the side of the piston facing away from the cover 4 and connected with the other end to the housing 1, so as to define the stroke of the piston 5. It is self-evident that, instead of a chain, another flexible connecting element, such as a cord, may be used as well.

[0010] The piping nozzle provided at the end of the hose preferably comprises a stop valve, so that the dispensing of liquid can be temporarily interrupted. It is very advantageous then if the piping nozzle with stop valve is designed as piping gun. With such an embodiment it is very easy to measure out liquid.

[0011] As clearly shown in Fig. 5, the piston 5 comprises a lower part 5b provided with a sealing ring 13 and an upper part 5a serving as bag guide. According to a further elaboration of the invention, the circumferential edge 14 of the end face of the piston 5 facing the cover 4, in particular of the upper part 5a of the piston, is rounded, and this circumferential edge 14 is located at some distance from the circumferential wall 1a of the chamber 3, so that between the circumferential edge 15 of the piston 5 and the circumferential wall 1a of the chamber 3 a ring-shaped space R is present adjacent to the circumferential edge 15. When the bag B is emptied under pressure during upward movement of the piston 5, the foil of the bag B will collect in this space R. It is thus realized that the bag B can be emptied completely. When the bag B is larger, a larger space R is required. To provide a larger space R, according to a further elaboration of the invention, a number of filling plates 11, 12 are provided which can be placed on the side of the piston 5 facing the cover 4. It also applies to the filling plates 11, 12 that the circumferential edge 16 of at least a filling plate 12 nearest to the cover is rounded, a circumferential wall 17 of the relevant filling plate 12 being located at some distance from a circumferential wall of the chamber 3, so that between the circumferential wall 17 of the filling plate 12 and the circumferential wall 1a of the chamber 3 a ring-shaped space R is present adjacent to the circumferential edge 16. Optionally, the device may be provided adjacent to the piping nozzle with auxiliary devices, such as a beating-up device, a measuring-out device and/or a feeding device. With a beating-up device the viscous liquid can be beaten up before it is applied. With a measuring-out device, e.g. a fixed amount of liquid can be dispensed each time. With a feeding device a second ingredient can be fed to the viscous liquid. The operation of these auxiliary devices optionally requires compressed air, which can be taken from the compressed air connections 18, 19, shown in Figs. 1 and 2.

[0012] As clearly visible in Fig. 1, the cover 4 is provided with a lock 23, which is pivotally connected to the cover 4, and which, in closed condition of the cover 4, can be hooked behind pins 24. To open the cover 4, the cover is provided with a handle 20. In the top plan view shown in Fig. 4, the emergency stop 10 and the on/off switch 21 of the device are clearly shown. Furthermore, a display 22 is shown, with which relevant data can be indicated.

[0013] It is self-evident that the invention is not limited to the exemplary embodiment described, but that various modifications are possible within the scope of the invention.

Claims

1. A device for dispensing liquids, such as pastry cream, rice pudding, whipped cream, whipping cream and the like, which viscous liquid is filled into a bag (B) provided with a nozzle (M), wherein the device comprises a housing (1) with a chamber (3), the device comprising a cover (4) intended for closing the chamber (3), a piston (5) arranged for movement in the chamber (3), a recess for fittingly receiving the nozzle (M) when the bag (B) is disposed within the chamber (3), and a hose with a piping nozzle, which hose, in connected condition, is in fluid communication with the interior of the bag (B) via the nozzle.

2. A device according to claim 1, characterized in that the recess (6) for receiving the nozzle (M) partly extends in the cover (4) and partly in the housing (1) adjacent to an edge (7) defining an access opening of the chamber (3), so that in closed condition of the cover (4) the nozzle (M) is fixed between the housing (1) and the cover (4).

3. A device according to claim 1 or 2, characterized in that a pressure line, by means of which a pressure medium can be supplied for moving the piston (5) in

the direction of the cover (4), is connected to the part (3a) of the chamber (3) located on the side of the piston (5) facing away from the cover (4).

4. A device according to any one of the preceding claims, characterized in that the piping nozzle is provided with a stop valve.

5. A device according to claim 4, characterized in that the piping nozzle with stop valve is designed as piping gun.

6. A device according to any one of the preceding claims, characterized in that the device comprises a number of filling plates (11, 12) which can be placed on the side (5a) of the piston (5) facing the cover (4).

7. A device according to any one of the preceding claims, characterized in that a circumferential edge (14) of the end face (5a) of the piston (5) facing the cover (4) is rounded and is located at some distance from the circumferential wall (1a) of the chamber (3), so that between a circumferential wall (15) of the piston (5) and the circumferential wall (1a) of the chamber (3) a ring-shaped space (R) is present adjacent to the circumferential edge (14).

8. A device according to claim 6, characterized in that at least a filling plate (12) nearest to the cover (4) is provided with a rounded circumferential edge (16), a circumferential wall (17) of the relevant filling plate (12) being located at some distance from a circumferential wall (1a) of the chamber (3), so that between a circumferential edge (17) of the filling plate (12) and the circumferential wall (1) of the chamber (3) a ring-shaped space (R) is present adjacent to the circumferential edge (16).

9. A device according to any one of the preceding claims, characterized in that a chain (25) is attached to the side of the piston (5) facing away from the cover (4) and is connected with the other end to the housing (1), so as to define the stroke of the piston (5).

10. A device according to any one of the preceding claims, characterized in that the device is provided adjacent to the piping nozzle with auxiliary devices, such as a beating-up device, a measuring-out device and/or a feeding device.

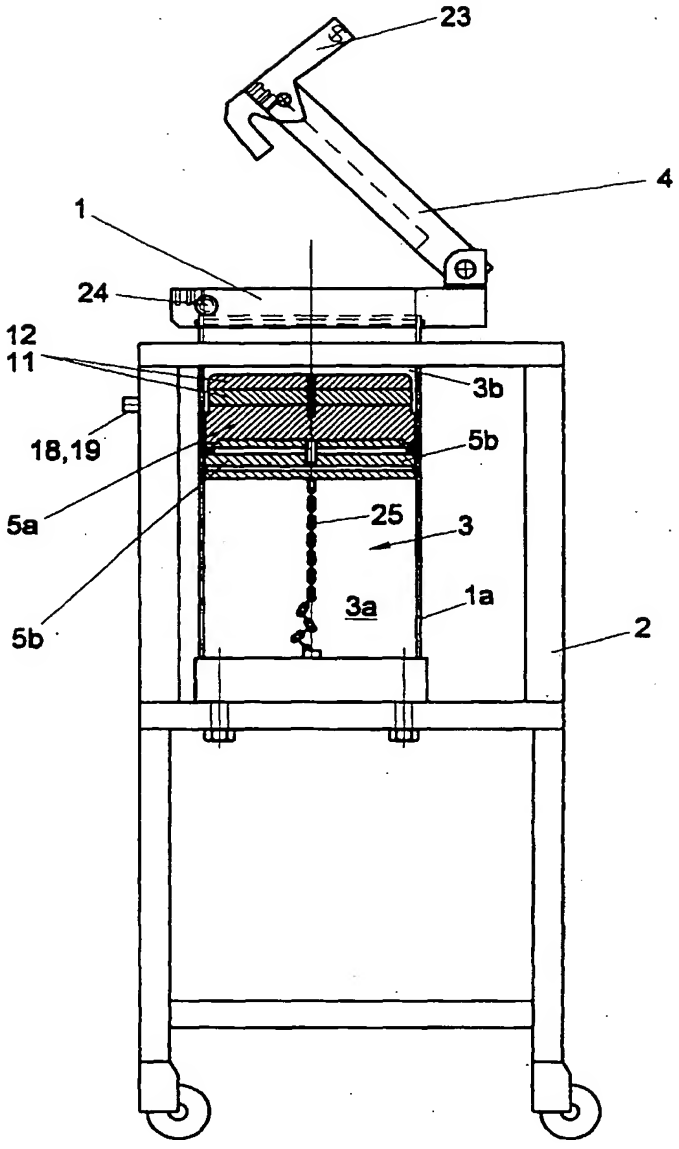

Fig. 1

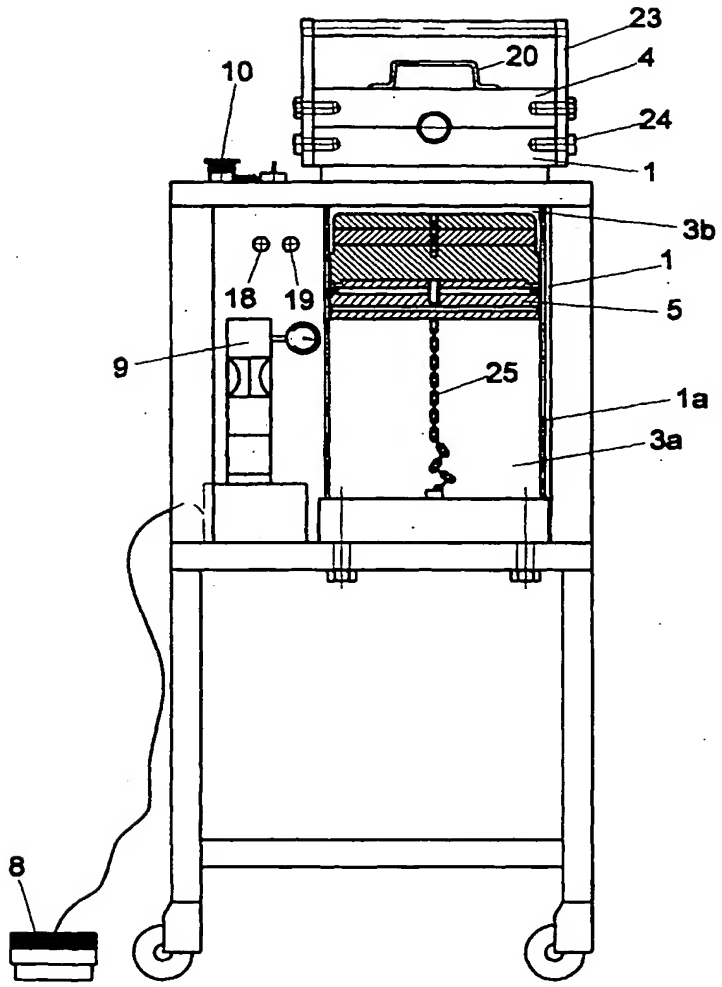

Fig. 2

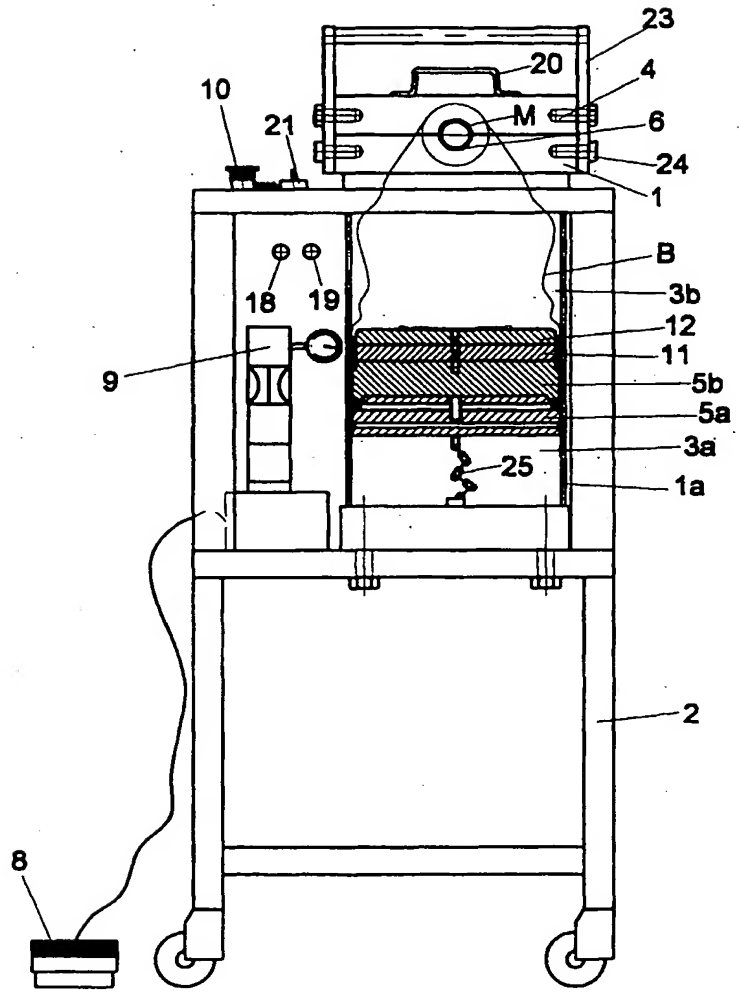

Fig. 3

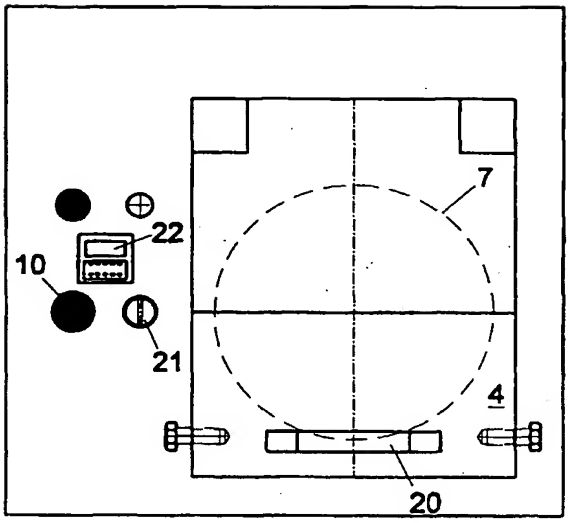

Fig. 4

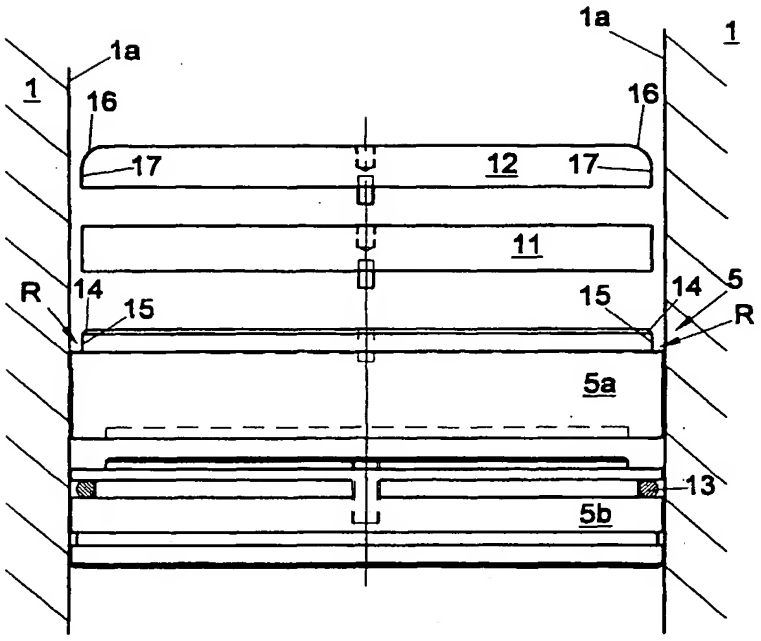

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 98 20 3364

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
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TECHNICAL FIELDS SEARCHED (Int.Cl.6)

B67D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	4 January 1999	Deutsch, J.-P.

CATEGORY OF CITED DOCUMENTS

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